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AMATEUR'S ROSARIUM

BY THE

REV. R. WODROW THOMSON.

THE AMATEUR'S ROSARIUM.

THE

AMATEUR'S ROSARIUM;

A Manual of Directions

REGARDING THE

CULTURE, PROPAGATION, AND VARIETIES
OF THE ROSE.

BY THE

REV. R. WODROW THOMSON.

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PREFACE.

THE motive which has induced the Author to present this little work to the public, is a desire to furnish the Rose Amateur, with a cheap and concise Manual, to guide him in the cultivation of his favourite flower. In engaging in this work, he had no wish to ignore the larger and more able treatises which already exist; such as those published by Messrs Paul, Rivers, &c. With these, however, in existence, a Manual for the general class of amateurs, was, it appeared to him, still a desideratum, and he trusts that this work will tend to supply it.

He feels at the same time, that he is not unqualified for the task which he has here undertaken. During the last fifteen years, he has studied the nature, and practised the cultivation of the Rose. With the exception of those portions of this work, which refer to the pot-culture of this plant, and its propagation by seed, almost every statement is the result of experience.

With regard to those passages in this treatise, which are occupied with the description of horticultural operations, as pruning, budding, &c., the Author has felt the difficulty, which all writers on such subjects feel, of conveying a clear idea in words, of the mode of conducting them. He has made the matter as clear as he could. At the same time, the tyro in floriculture must see the work done by another, and the written instructions will then help to refresh his memory.

It was at first intended to add coloured illustrations. These would, however, have added greatly to the price of the work; and the Author has confined himself to the slight sketches which his own pencil could supply.

He would conclude by recording the intense pleasure which Rose culture has afforded to him. It has tended to relaxation, in the midst of important professional duties. It has aided in the maintenance and restoration of health, and it has wiled away many a weary hour, in a way exempted from any risk of that censorious gossip, which other relaxations in the case of a clergyman are apt to engender. He will therefore, be well-pleased, if he should be instrumental in adding to the number of Manse Rosariums.

CONTENTS.

CHAP. PAGE

I. Introductory Remarks, . . . 9

II. Classification of Roses, . . . 13

III. Selection of Varieties, . . . 21

IV. Modes of Introducing Roses into the Garden, 23

V. Soils and Manures, ... 27

VI. Planting, ... 35

VII. Pruning and Disbudding, . . . 39

VIII. Propagation, ... 49

IX. Pot Culture, ... 71

X. Enemies of the Rose, . . . 75

XI. Staking, Protecting, &c., . . . 83

XII. Roses which require Peculiar Management, 87

XIII. Notes as to History of Families and Varieties, 91

XIV. Lists of Roses for Special Purposes, . 109

XV. Select List of Varieties, . . . 113

THE AMATEUR'S ROSARIUM.

CHAPTER I.

INTRODUCTORY REMARKS.

THE Rose may with propriety be described as the fashionable flower of the day. Fashions in flowers change like fashions in other things. In the days of our fathers, the rage was all directed to the cultivation of the Tulip and other Bulbs; and fabulous prices were sometimes paid by Tulip maniacs, for a single root of this gaudy, scentless, and now forgotten plant. Then successively followed a rage for Auriculas, Pinks and Carnations, Ranunculuses, Pansies, and Dahlias. These were wondrously improved by the florist's skill, and to a limited extent, many of them are favourites still. The Rose is now the rage: it has perhaps a wider range of admiring cultivators than that which any of its predecessors enjoyed.

Nor is this a cause of surprise. Its beauteous and varied colours, in some cases rich in their shade, in others so delicate in their hues; its almost unequalled perfume, combine with the comparative ease of its cultivation, to entitle it to wear the diadem of the floral kingdom. Since the earliest ages it has consequently been beloved by man. Inspired writers guided by the Spirit of God, have used it as a symbol of highest and holiest things. Isaiah employs it as a symbol of that beauty, which shall adorn the heathen world, when converted to the knowledge of the truth.

When we turn to heathen writers, we find it a favourite subject of their praise. Anacreon makes it the burden of more than one of his odes, and Virgil, Horace, Cicero, Ovid, and Pliny, all refer to its attractions. In our own country, from the earliest ages, it has been a favourite; and we need hardly remind the reader, that when the opposing royal lines of England so long contested for her crown, two varieties of this plant represented respectively the contending factions, and bloomed on the helmets of their partizans.

Throughout the eastern part of the world, it has always been widely cultivated, and is an important article of commerce.

In all of these cases, we have reason to suppose, however, that it is the Rose, as nature has left it, about which man has written, and with which he has dealt. It is not, however, to the Rose in its natural condition that our description in this treatise will chiefly refer. It is the Rose of the florist, not that of the botanist, which will be our theme; and though we shall shortly refer to the different species, into which botanists have divided this great family, our chief subject will be its treatment and classification as a florist's flower.

Between the duties which belong to the professors of these two branches of vegetable science there is this distinction. The botanist studies and classifies plants as nature has left them: it is the Rosa Damascena, in its wild and natural state, and not its descendant, our "Géant de Batailles," which is the object of his attention. The florist starts from the point at which the botanist stands still. He takes the Wild Rose of Damascus, cultivates and hybridizes it, and he finds his reward in those graceful children of his care, which deck our beds during five months of the year.

In no country has this reward been so fully gathered as in France. For a long period of time has the Rose been a favourite there. At Malmaison, it held a chief place in the garden of the Empress

Josephine, and to French growers we are indebted for almost all of our leading varieties. Vibert, Laffay, Hardy, &c., have been successful in a marked degree. To them we owe D'Aguisseau, Blanchefleur, Princess Clementine, Brennus, William Jesse, Coup d'Hebe, La Reine, Duchess of Sutherland, Géant de Batailles, Charles Lawson, and a host of others.

In our own country, as we have already stated, the Rose has been for long, not only a favourite, but the most popular of flowers, and frequent allusions to it are made in the writings of the older, as well as the more modern of our poets. During the present century, the increase in the number of varieties cultivated in Great Britain, has been most rapid. The last decade of the eighteenth and the first of the nineteenth centuries, saw the Chinese, Tea, and first Perpetuals introduced. Twenty years passed away, and in 1827, more than a thousand varieties were under cultivation; and now, when we include the acquisitions of the last thirty years, we feel assured that we do not exaggerate when we say, that a collection of many thousand varieties, distinct from each other and all worthy of culture, might with ease be made.

CHAPTER II.

CLASSIFICATION OF ROSES.

THIS part of our subject divides itself into two branches. The first is the classification of the botanist; the second is the classification of the florist.

On the first branch, our remarks will be confined within narrow limits. Still, it is not foreign to our theme. It will interest the amateur, by showing how nature has divided the species of his favourite flower, and how the science which he cultivates has improved it. Let it not be supposed that the two classifications are antagonistic. They are merely different; they are not opposed.

1.—BOTANICAL CLASSIFICATION.

The Rose, according to the system of Linnæus, belongs to the class Polyandria, and to the order Polygynia. In this system, the reader is aware, the classes are determined by the number, position, &c., of the stamens, while the orders depend on the number of the styles, or nature of the fruit.

According to the natural system of classification adopted by Jussieu, the Rose belongs to the order of Rosaceæ, an order which embraces also the Amygdaleæ, to which belong plums, peaches, &c.; the Potentillææ, or strawberry tribe; the Pomaceæ, or apple tribe, &c., &c.

The sub-order of Rosæ, is again subdivided by botanists into many sections; and these again into species.

In the following table we mention some of the sections which may interest the British florist, from the fact that they have species either indigenous to Britain, or imported from other countries, and cultivated in our gardens. We leave out of view some of the sections known to botanists, and abstain from a minute description of the botanical marks which distinguish the sections from each other, feeling assured that such description would prove void of interest to the great majority of our readers.

In this table, the column to the left contains ten of the sections into which the sub-order of Rosæ is divided; the middle column contains the species which these different sections include; while that to the right, contains the groups, or families, which represent these sections, and species, in our British gardens.

SECTIONS.	SPECIES.	VARIETIES CULTIVATED IN OUR GARDENS.
1. Bracteatæ....	Macartneyana ...	Macartney's Rose
2. Cinnamomeæ	Cinnamomea....	Cinnamomea.
3. Pimpenellifoliæ.......	Rubella...........	Rubella.
	Sulphurea........	Sulphurea.
	Spinosissima.....	Scotch Rose.
	Hibernica	Hibernica.
	Sabini	Sabine's Rose.
4. Damascena...	1. Centifolia	1. Provence.
	——	2. Cabbage.
	——	3. Moss.
	——	4. Pompone.
	2. Gallica........	French Rose.
	3. Parvifolia.....	Burgundy Rose.
	4. Pulchella	Rose de Meaux.
5. Villosa.... ...	1. Villosa	None.
	2. Alba...........	Celestial Blush, &c. &c.
6. Rubiginosa...	2. Rubiginosa...	Sweet Briar, and varieties.
7. Canina	1. Canina	Dog Rose.
	2. Indica.........	China Rose.
	——	Tea Rose.

SECTIONS.	SPECIES.	VARIETIES CULTIVATED IN OUR GARDENS.
7. Canina	3. Lawrenciana	Miss Lawrence's Rose.
8. Systylæ	1. Sempervirens	Many Varieties.
	2. Multiflora	Grevillei, and other varieties.
	3. Moschata	Musk Rose.
9. Arvensis	Arvensis	Ayrshire Roses.
10. Banksiana...	1. Microcarpa...	Microcarpa.
	2. Banksiæ	Lady Banks' Rose, in varieties.

In addition to these, there are many other sections, species, and varieties, whose position has been assigned by botanists, but which to the Rose amateur are possessed of little interest. They are therefore entirely omitted in the above classification.

2.—FLORICULTURAL CLASSIFICATION.

This classification to a certain degree depends on that already explained. The chief points of distinction, are—1st, The florist's classes correspond with the sub-species of the botanist, *i.e.*, with those mentioned in the column to the right of the page in the preceding section of this chapter, the floricultural classes being divided into varieties ; while a second distinction is, that the florist includes many subdivisions, not naturally but artificially produced.

The florist divides Roses, in the first place, into two grand sections. The first section includes all Roses which flower only in summer. The second consists of those which continue to flower during the autumn months.

SECTIONS.	CLASSES.
1*st Section.* Roses which flower only in summer.	1. Ayrshire Rose, Bot. (*Rosa arvensis*). 2. Boursault R. (*R. alpina*). 3. Scotch R. (*R. spinosissima*). 4. Old Double Yellow R. (*Rosa sulphurea*). 5. Damask Rose (*R. Damascena*). 6. Provence Rose (*R. centifolia*). 7. Moss Rose (*R. centifolia*). 8. Hybrid Provence (*R. centifolia*).

SECTIONS.	CLASSES.
1*st Section.* Roses which flower only in summer.	9. French Rose *(R. gallica)*. 10. Hybrids, between Chinese, Bourbon, and Noisette Roses, on the one hand, and French and Provence on the other. 1. Hybrid Chinese. 2. Hybrid Bourbon. 3. Hybrid Noisette. 11. White Rose *(R. alba)*. 12. Sweet Briar *(R. rubiginosa)*. 13. Austrian *(R. lutea)*. 14. Evergreen Rose *(R. sempervirens)*. 15. *R. multiflora.* 16. *Musk Roses.* 17. Prairie Rose *(R. rubifolia)*. 18. Banksian Rose *(R. Banksiæ)*.
2*d*. Autumnal Roses.	1. Damask Perpetual *(R. Damascena)*. 2. Rose de Trianon *(R. Damascena)*. 3. Hybrid Perpetual.

SECTIONS.	CLASSES.
2*d*. Autumnal Roses.	4. Perpetual Moss *(R. centifolia)*. 5. Perpetual Scotch *(R. spinosissima)*. 6. Chinese *(R. indica)*. 7. Crimson Chinese *(R. indica, semperflorens)*. 8. Fairy Rose *(R. Lawrenciana)*. 9. Tea Rose *(R. odoratissima)*. 10. Bourbon *(R. indica)*. 11. Noisette *(R. moschata)*. 12. Macartney Rose *(R. bracteata)*. 13. Microphylla *(R. microphylla)*.

Such, then, is a concise view of the Floricultural division of the Rosæ. There are other divisions to which we need only in a single sentence advert.

With regard to habit, Roses may be designated as *Pendulous* or *Erect*, the first including the Ayrshire, Boursault, &c.; the second embracing the Gallicas, Damasks, &c.

With regard to strength and length of shoot, Roses are divided into—1st, *Vigorous* varieties, or those which in one season produce shoots from 6 to 15 feet in length. 2d, *Robust*, those producing shoots from 2 to 4 feet long. 3d, *Medium*. 4th, *Delicate*.

In reference to shape of bloom, they are divided into those whose flowers are *globular*, as Sophie de Marsilly. 2d, *Cupped*, as Coup d'Hebe. 3d, *Compact*, as D'Aguisseau. 4th, *Expanded*, as Géant de Batailles.

CHAPTER III.

SELECTION OF VARIETIES.

In deciding on the classes and varieties to be obtained, the Rose-fancier at his first outstart should never depend, either on his own judgment, or on the descriptions which he finds in catalogues.

We do not mean to insinuate that these descriptions are erroneous. When the catalogue is published by a respectable establishment, it correctly describes the variety in the characteristics which distinguish it, when grown in circumstances not unfavourable to its growth. It must, however, be remembered, that the Rose which grows and blooms freely in one place or climate, may neither grow nor bloom well when these circumstances are changed. Nor is it only classes which thus differ from each other, in their fitness for particular localities,—the same diversity is sometimes to be remarked between different varieties belonging to the same class. Thus, we have some hybrid Perpetuals, which will neither bloom nor grow well, though planted in the bed which contains others of the same class, which produce strong plants and magnificent blooms.

What then, it may be asked, is the tyro in Rose culture to do? Our advice to him is this: Let him consult a friend skilled in Roses, describing to him the climate, exposure, and soil of his garden, explaining to him what he wants to effect, and this friend will at once easily direct him in his selection; or let him give the same information to a leading Rose nurseryman, of whom there are many, and he may rely on his getting fine varieties fitted to produce the desired results. We may remind him that the honour and interest of the Rose-dealer combine to ensure his satisfaction; as every collection of healthy well-flowering plants is a living advertisement, which may gather other amateurs to the same source of supply.

We add to these remarks the following general hints, as to the classes suitable for certain localities.

1. For walls with a northern or eastern exposure. Ayrshires, Boursaults, and Sempervirens.

2. For walls with a southern or western exposure. Tea Roses, Noisettes, and vigorous hybrid Chinese, and hybrid Bourbons.

3. For good soils and climates, all. And we shall afterwards explain what a good Rose soil is.

4. For dry soils, Tea Roses.

5. For very sandy soils, *none*.

CHAPTER IV.

MODES IN WHICH ROSES MAY BE INTRODUCED INTO THE GARDEN.

In very small gardens, Roses are generally mingled with other flowers in the mixed beds or borders. When placed so as not to be hidden by other vigorous plants, this plan may be adopted for a very small collection. This mode of culture, however, labours under two disadvantages. It renders more difficult the proper treatment of the plant in reference to soil and manure; while, on the other hand, Roses grown in this way, lose much of the effect which when grown in masses they produce. This mode should not at the same time be entirely excluded by the amateur; and while the chief portion of his varieties are collected in groups, plants of Géant de Batailles, General Jacquiminot, Lord Raglan, &c., will have a fine effect, when contrasting their crimson hues with the white and yellow colours of his summer and autumn plants.

That Roses may have full justice, however, in the flowering season, they must be grouped, either in borders or in beds. These beds may either be sprinkled here and there through the flower garden, or gathered together in a special part thereof, devoted to this flower. The selection between these two modes of placing them, will of course depend on the taste of the amateur, and the size and shape of his flower garden. In selecting his varieties in either mode of distribution, he must take care that he places in the same bed only those which are nearly of the same habit. How out-of-place would a plant of Coup d'Hebe be in a bed of dwarf Gallicas or Damask Roses. Of course this remark does not apply to those beds, whose plants are intended to rise gradually from the circumference to the centre. In such beds, each succeeding circle must be composed of varieties more vigorous in their growth, than those in the circle which precedes it.

Another rule to be observed in our selection of Roses for grouping in beds is, *We must keep in view, not only the habits of the varieties, but the duration of their flowering season.* Summer and autumn flowering Roses should each of them be grouped by themselves. A solitary plant of Géant de Batailles in September, looks as if in a wrong place, when surrounded by flowerless plants of Gallicas, Damask, or Provence

Fig. 1.

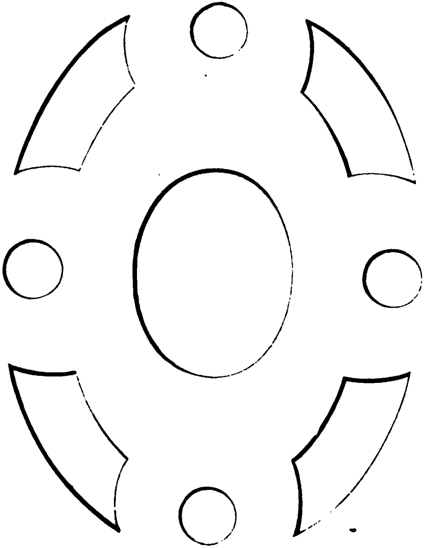
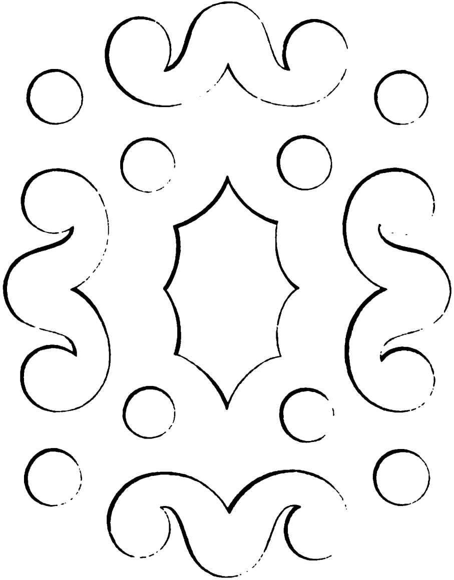


Fig. 2.



Plans of Rose Gardens.

Roses. Let the amateur keep these considerations before him when he makes out his list.

With regard to the size of the beds, this must depend on the size and plan of the garden. We must beware, however, of small beds. It is better to have only a few of a good size, than a multitude, all devoid of dignity from their want of breadth.

Should the amateur resolve on grouping his beds together, he must mature his plan before he decides on his selection. The annexed sketches may assist him in doing so:—(See figs. 1 and 2.)

We have given these plans simply in the way of general hints, leaving the amateur to follow the dictates of his own taste with regard to the form and arrangement of his beds. Should he be unwilling at first to make a collection sufficiently large to fill all the figures with Roses, some of them may be assigned to Geraniums, or other bedding plants. On the other hand, should the circumstances of his garden not admit of a regular Rosarium, let him assign to Roses a border in front of a west or south wall, covering the wall itself with Noisettes and Teas, or other tender climbing varieties, and so arranging his plants that they may gradually slope upwards from the verge of the walk.

The succession may be as follows :—

1. Dwarfs.
2. Half-Standards.
3. Standards.
4. Climbers.

Note.—A Dwarf is a Rose on its own roots, or budded on a six inch stem. A Half-Standard has a stem about two feet high. A Standard is one whose stem is from three to four feet in height.

CHAPTER V.

SOILS AND MANURES.

THE soil which is best adapted for the Rose is a deep heavy loam. Should this be unattainable, a clay soil, not too retentive in its character, and properly managed, will suit them well. The soils which are naturally unfitted for their growth, are those which consist of a stiff, retentive clay, and those which are of a very sandy nature. The amateur, therefore, who finds his soil to be either too retentive or too dry, must direct his thoughts to its improvement; and if he works aright, he may comfort himself with the assurance of success.

Let us suppose that his soil is naturally damp and retentive. He must in this case proceed to drain it. This may be effected by tiles, or, if these cannot be obtained, by stones. This removal of superabundant moisture is not, however, all that is required. He must endeavour not only to increase the dryness of his soil, but also to improve its constitution, by rendering it more friable and porous. This result, to a considerable extent, may be effected by exposure to frost. To secure this, the ground should be roughly trenched, and the surface left as uneven and open as possible. This trenching, which should be effected in the beginning of winter, will, if frost prevails, materially affect the consistency of the soil before the season of planting. To make the pulverization more complete, in February, holes should be dug, where the plants are to be placed, and the soil thus taken up left loose around their edges. In this way, the portion of earth which in planting will come most closely into contact with the roots, will have all the friability which frost at least can bestow.

In addition, however, to this improvement effected by atmospheric influence, the greatest benefit will be produced by the admixture of substances having a tendency to disunite the retentive masses of the natural clay. Sand, lime, or chalk, peat or light earth, should be freely scattered on the surface, and dug in; while decayed stable-manure, which is prejudicial in the case of light or loamy soils, may be with advantage liberally supplied. With this mode of treatment, a very retentive soil will produce fine and healthy plants.

In the case of a very light sandy soil, the treatment must be very different. The object here to be effected, is to make the soil more retentive than it naturally is. For this purpose, clay or heavy loam may be with advantage introduced. The clay should be spread on the surface, in beginning of winter, and occasionally beaten and broken with a mallet. In spring it should be dug in, and mixed with the natural soil as thoroughly as possible. This may be done to the depth of eighteen inches at least, if circumstances admit of this depth.

Cases may however occur, in which the soil is so hopelessly bad, that a mere admixture of other soil would be fruitless. In such cases, let the whole of the natural soil be removed from the sites of the beds, and let the excavation be filled with artificially prepared mixtures. Black loam, decayed turf, road scrapings, well matured soil from an old wrack heap in the fields, with a moderate mixture of lime well mingled, do well, or, when all cannot be obtained, we must take those within our reach.

The *manuring* of Roses is a branch of this subject to which an amateur must pay special attention. To grow them in perfection, manure is required not only in the first formation, but also in the future maintenance of the beds; not only to assist in curing bad soils, but in maintaining good soils, in a prolific and healthy condition. In the first formation of the Rosarium, it is required to supply those elements which the soil may naturally want. In the future management, it is needed to restore those which the vegetable growth may extract. Every plant lives and grows, by drawing from the soil those ingredients which support its life and tend to its advancement. Were the Rose bed neglected, therefore, in way of extraneous supply, the natural result would be, that as the plant grew, it would need and extort more and more of its own food from the soil, leaving less and less for its future wants. The decayed foliage which accumulates around the plant in a wild condition, affords it food; but in the flower garden this is removed: and atmospheric influences, rains, &c., only very partially supply the want.

Manure, as already hinted, should be supplied, 1st, when the beds are formed. The ground, as we have said before, should be trenched. Our mode of preparing a bed was this:—The earth on the surface was taken out to the depth of nine inches and laid on one side. Below this the earth was removed to the same depth, and laid on the other side. The surface earth was then placed in the bottom. On this a thick layer of manure in good condition was spread; this layer being about six inches in thickness. The soil which was before below, was thrown on the top of this manure, and a liberal supply of decayed hotbed manure, dug in, completed the process.

2. Manure must be supplied at least every year, to maintain the beds in their supporting functions. To effect this, night soil is the most powerful agent which can be employed. It may be placed in some retired spot, covered with earth, turned, and mixed with soil now and then. In February or March it may be spread and forked in on the surface of beds. Another mode of preparation is to introduce it into the cesspool; there it will mingle with soap suds, &c., and may thus be applied to the beds during spring and summer, in a liquid form. During May, June, July, we applied it almost every fortnight, with beneficial results.

The cesspool of the farm-yard supplies another manure of the most stimulating and nutritious character. There, the drainage from the byre and stable mingles with that from other quarters; and still, how often is this mixture, so precious in a florist's eye, allowed to run to waste. Having no farm-yard of our own, we had to arrange with a neighbour in reference to this kind of supply. We gave to him all the proceeds of the ash-heap, so poisonous in a loamy, so beneficial in a retentive soil. We obtained in return a puncheon or two full of liquid manure, very rich and very unsavoury. This was diluted, and frequently and liberally poured around the stems of our Roses. By this simple arrangement, the farmer had good wheat, and the author good Roses.

Guano is a manure which in its application to the Rose, must be used with the utmost caution. When used imprudently, its tendency is to encourage growth in the shoots at the sacrifice of bloom. It should always be applied in a liquid form, and the solution must be allowed to settle till it clears; we must beware, at the same time, of applying it too early in the season. It should *never* be applied until the flower-buds can be discerned. It should then be given to invigorate the blooms. This should be done every week. The application may be continued during July and August. This will strengthen Perpetuals for their autumn work, and encourage summer Roses to send forth strong shoots for the duties of the following season.

Pigeon, rabbit, and sheep dung may with greatest advantage be applied as a top-dressing to the beds in spring.

Charred earth has been highly recommended by distinguished cultivators of the Rose. From personal experience we can say little on this subject. The testimony of others, however, establishes its efficiency; and Mr Paul of Cheshunt, than whom no higher authority can be obtained, places it next to night soil in his enumeration of fertilizing applications. It is manufactured precisely in the same way in which common wood is changed into charcoal. Some old turf or portions of wrack heaps or road scrapings, a little brushwood, with a few days' occasional attendance of a man, will supply the amateur with what will be sufficient for the surface-dressing of a good collection.

In concluding this chapter, we would only observe that Tea Roses especially require a soil that is light and dry. Damp is fatal to them.

CHAPTER VI.

PLANTING OF ROSES.

1. *Time of Planting.*—Roses may be planted either in autumn or in spring. The season we select should depend on the distance from which they are brought, on the classes we plant, and on the winter climate to which our Rosarium is exposed.

When the plants are of our own raising, or when they are purchased from a nursery near at hand, they may, not only with safety but advantage, be planted in October, *i.e.*, if the kinds selected are hardy. Though the foliage is not completely matured, there is in such a case little risk of shrivelling, and the still remaining activity of the plant will cause the more speedy formation of new fibres in the root.

When *hardy* varieties are to be brought from a distance, planting should be delayed till November and December. By this time the ripeness of stems and foliage to a great extent protects the plants from the evil consequences of delay, between the time of lifting and that of replanting.

In the case of hardy Roses, such as summer

Roses and the great majority of hybrid Perpetuals, unless the climate is very severe, we would recommend autumnal planting. In this way the plants are enabled to establish themselves during the season of winter.

When the varieties chosen are *tender*, as Teas, Noisettes, &c. &c., in situations where the winter is severe, the planting must be delayed till spring, and we have generally found that the middle of March is an appropriate season.

Should the purchaser obtain his plants from a distance, and be unwilling to have two packages sent to him, he can easily order his tender varieties to be sent in pots, and thus place them during winter under protection.

2. *Mode of Planting.*—When Roses are not only planted, but lifted by the amateur, the greatest care must be taken in raising the roots from the nursery bed. The soil should be well loosened with a fork. The plant should frequently, during the operation, be gently pulled, to discover where the roots are most firmly fixed, and the spade at these spots introduced below. Notwithstanding, however, all this caution, the large fibres will here and there be torn. These must, at their broken terminations, be cut with a sharp knife, to prevent decay at the wounded extremities.

The holes for the plants should be made wide enough to allow the extended fibres to have sufficient space, and deep enough to allow the stem to be covered, only to the depth to which it was covered before. This depth may be ascertained by a slight examination. Nothing can be more prejudicial to the Rose, than too deep planting; not only does it rob the roots of necessary warmth, but the soil pressed against the stem is apt to engender disease and decay in the bark.

The hole being prepared, the operator should take the plant in his left hand, and with the right, carefully spread the fibres apart from each other over the bottom. Should another set of fibres spring from the stem further up, these should be held up, while the lower set is covered with a little soil. On this soil they should in their turn be extended, and then the hole may be filled up. The plant should be then staked and tied, and a copious watering given. This settles the earth more completely around the fibres, than mere trampling or beating of the soil can possibly do.

The beds should then be well mulched with litter; this tends not only to enrich the soil, but to protect the roots from severe frost during the winter months. The mulching may be removed in the end of April.

CHAPTER VII.

PRUNING AND DISBUDDING.

The objects to be gained by pruning, are three in number—1st, *The nourishment of the plant* ; 2d, *The exposure of its foliage to the action of light and air* ; 3d, *Its graceful formation.*

When we leave the plant in its natural state, the multitude of its buds deprives all of them of that amount of sap, which when the number is diminished by pruning, each bud which remains is able to enjoy. The branches at the same time become so crowded, that the leaves, which are in reality the lungs of the plant, from their crowded position, are deprived of that exposure to sun and air, which is required to oxygenate the sap and so fit it, in its return through branches and stem, for the nourishment thereof (see note at the end of this chapter) ; while the last effect of non-pruning is, that the plant never assumes a proper shape. In the forest, the best shape of the Rose plant is that which nature gives it, for all is wild and natural around it. But in a flower garden, there is to a great extent artificial arrangement ; and a Rose untouched by the pruning knife, would there be as out of place as a trimly pruned Gallica would be in the wilderness, or on the mountain side.

With regard to the *best season* for pruning, floriculturists differ in their opinions. Some recommend the beginning of winter, others the beginning of spring. The question involves an alternative between two advantages and two risks. The winter pruner defends his practice on the ground, that spring pruning necessitates the waste of the sap which the discarded buds have during the winter appropriated. The spring pruner, on the other hand, defends his practice by arguing that, when Roses are pruned in winter, a mild season has a tendency to make the buds start too soon, and thus be exposed to injury from spring frosts.

The middle course in this, as in many cases, is the safest. In *certain* circumstances, each plan is most advisable.

In the case of Roses planted in autumn, defer pruning till spring.

To the same season defer the pruning of autumn-flowering Roses. Perpetuals, Noisettes, Tea Roses are so constant in their activity, that, after late pruning in autumn, they are sure to start and suffer injury; and the same rule applies to all of the climbing hybrid Chinese, and hybrid Bourbon groups.

When hardy, not very robust growing varieties, as Gallicas, Provences, and Damasks, have been established, let pruning take place in November.

MODE OF PRUNING.

In this matter we must be guided by the habit of the variety, and the object which we have specially in view. In reference to habit, our pruning must be very different in the case of Roses of vigorous habit, from what it should be with those of moderate or dwarfish growth. The length of the portion pruned away, must depend on that of the shoot which the Rose naturally produces. The great rule is this: "Let the freedom of your pruning be *inversely* in proportion to the freedom of the Rose's growth." In other words, when the Rose grows vigorously, prune it little: when it grows slenderly, prune it closely. Prune a Gallica too meagrely, and it will have shabby blooms. Prune a "Coup d'Hebe" closely, and the likelihood is, that it will have no blooms at all. It is this rule which is so often neglected. We have seen not only the amateur, but the professional gardener go over their beds, and leave the shoots of all their Roses of the same uniform length; and then have the face to grumble, when the flowering season came round. They would have sneered, at the same time, at the tyro who subjected his Black and Red Currants to a similar ordeal.

In pruning a vigorous plant of "Coup d'Hebe," "Chenedolé," or other Roses of similar habit, six or eight buds are a sufficient number to be removed. In very shy growers, such as some of the Gallicas, &c., we should *leave* only two or three buds to grow. Guided by this rule, and helped by experience, we will soon acquire the knack, of adapting our pruning to the vigour of our varieties.

We have already observed, however, that in pruning, the cultivator must be guided, not only by the habit of the plant, but also by the special object which he has in view. His object may be either to form a graceful head, to cover a wall or pillar, or to produce a weeping Rose.

Should his object be the formation of a graceful head, either with a dwarf or standard, he must remember, that here the standard of perfection is a head which shall be in its form *semiglobular.* Towards this point, all his work must be directed. He must bear in mind, that the bud at the end of his shortened shoot will produce the strongest growth in that shoot. It is therefore of the utmost consequence that a bud should be left at the end, whose natural direction will afterwards conduce to the symmetry of the tree. If we examine a Rose shoot, we will find that the buds point in different directions, and these directions are maintained by the shoots which spring from them; a bud pointing to the left, producing a shoot growing to the left. Should you require, therefore, a shoot in any direction, cut down to a bud pointing in that direction. Mere shortening of the branches, however, is not all that is needed for the right formation of a Rose plant. In many cases, the complete removal of shoots is required to prevent overcrowding. These shoots must be removed close to the branch or stem from which they spring, that the wound caused by their removal may be covered with bark. Many of the lateral branchlets from the remaining branches should at the same time be cut off. With these general directions, we leave the amateur to his own skill and discernment.

When the object of the cultivator is to cover a wall or pillar with a climbing Rose, a different mode of treatment must of course be adopted. A pillar Rose is a free-growing sort, so trained as to clothe with foliage and blooms, a stout stake from five to ten feet in height. In this case, the same classes may be used as those which are used for a wall, if they are hardy. During the first season the shoots must be allowed to grow to their full length. In the following spring the pruning must commence. Suppose, then, that we have four strong shoots, each of them six feet in length, either on a wall or pillar. In spring, two of these may be shortened by six inches, while the other two should have the half of their lengths removed. The result of this mode of treatment of course will be, that while the lowest portion of the wall or pillar will be covered with young wood from the shorter branches, the upper portion will be clothed by that produced by those left at nearly their full length.

In succeeding seasons, we must continue to adapt the length and the number of the main shoots, to the height and breadth of space requiring to be clad. The lateral shoots should, in spring, be shortened to two or three buds; and when the under part of the plant has a tendency to become bare, the older main shoots must be cut down to within half a foot of the ground. This will induce strong young shoots to manifest themselves near the base, and these may be thinned out, and shortened by pruning, more or less, as circumstances may demand.

When the object of the amateur is to create a weeping Rose, his treatment must be as follows:—Having obtained a tall, strong standard, of some very free-growing variety, at the first pruning, he should cut the branches closely, *i.e.*, to within two buds of the stem. This will cause the plant to produce several very vigorous shoots. These should be thinned out, and those which remain induced, at regular distances from each other, to grow towards the ground. These, in due course, will, from their being bent, produce an abundant supply of lateral branches; and by shortening these, a handsome semi-globe, covered to the ground with blooms, will be our reward.

THINNING AND SHORTENING OF SHOOTS IN SUMMER.

The operation of pruning must not be confined to the spring or autumn months. Immediately after their July flowering, all summer Roses should be gone over with the pruning knife. In their case thinning, but no shortening is required. The older branches may be removed if the plant is too crowded. This will allow the other shoots the full influence of light and air. The decayed relics of the blooms should at the same time be removed. The seed vessels when allowed to remain, not only disfigure, but tend much to exhaust the plant.

With regard to autumnal Roses, after their summer flowering, they should have their shoots shortened, as well as thinned. Two or three buds only should be left on the shoot. This will encourage the production of shoots, for an autumn bloom, as the peculiar characteristic of this class of Roses is, that their young shoots in every season are, with few exceptions, shoots which flower during the first months of their existence.

DISBUDDING.

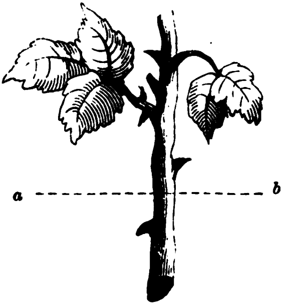
This is a mode of treatment, attended with the most beneficial results. The habit of the plant, and the desired form of its head, expose the operator, who confines himself to shortening, frequently to this dilemma. He must either shorten too much for the outline which he wishes his plant to bear, or with some varieties, he is compelled, if he does not shorten to this extent, to leave too many buds on that part of the shoot which he spares. The difficulty is removed by disbudding. By rubbing out unnecessary, or misplaced buds, he can leave the shoot as long as he pleases, and at the same time have only as many buds growing as he requires. This practice must be followed throughout the season, and in this way little vital power is wasted; and shoots permitted to grow on, attain to their utmost vigour and development.

Root Pruning.

This is the only system of pruning which remains to be considered. It is adopted with the view of increasing the flowering tendency of the plant. How often does the amateur see his beds disfigured by plants with gross branches, but with few or no flowers. In almost all cases of this kind, the cause is over-vigour; and the only cure is diminution of this vigour. This can alone be effected by pruning *charily* above, and *freely* below the ground. Let the amateur, therefore, take his spade, and at a distance of eight or ten inches from the stem, push it firmly down in a perpendicular direction; and also introduce it below the plant at the same distance from the surface. The effect will be this,—large roots will be cut, and small fibres be developed, and the Rose thus encouraged to restrain its growing, and increase its flowering tendencies.

Note.—The leaf is the lung of the plant. As the blood, by passing through the lung in animal life, becomes oxygenated by its contact with the atmosphere, and so fitted for the advancement and maintenance of animal life; in like manner, the vegetable sap, in passing through the leaf, by the chemical action of light and air, throws off certain ingredients, and imbibes others, and thus becomes able to maintain the existence, and promote the progress of the plant. Hence the advantage of judicious pruning; one most important result being, the due exposure of the leaves to the full influence of light and air.

Fig. 3.



CUTTING.

a, *b*, **Surface of Soil.**

CHAPTER VIII.

PROPAGATION OF ROSES.

THE cultivator of the Rose may increase his plants in five ways :—By cuttings, layers, grafting, budding, and seed. By the first four of these modes, he increases his plants; by the fifth, he may increase his kinds.

CUTTINGS (fig. 3).

Roses may be propagated in this way, either in summer or in autumn. Summer is the season during which this mode of propagation may, with great success, be used in the case of Chinese, Tea Scented, Ayrshire, Bourbon, Noisette, and other Roses of a similar habit of growth. The cuttings should be from six to eight inches in length. They should have matured wood, and be cut close to the stem, that thus a heel may be retained at their lower end. Two buds at least should be inserted in the soil. The leaves belonging to these buds should be shortened, but those which are to be above the soil should remain untouched.

The cuttings should be placed around the edge of the flower-pot, which may be filled with soil composed of sand, loam, and leaf-mould, in equal proportions. After planting them, the soil should be watered freely, and if a cold frame is attainable, they should be placed in it, and the light for a fortnight partially excluded. If damp manifests itself, air should now and then be given. At the end of this period, a Callus, consisting of roots in germ, will be formed; and though by no means essential, it is beneficial at this stage to give them moderate bottom-heat. This will hasten the formation of roots. If put in early in June, they should be changed into single pots in the beginning of August. Again, a slight bottom-heat should be applied, and they will in this way be ready for planting out in the middle of September. If this is not convenient, they may be retained in their second pots till spring; the pots being plunged in light soil in the open air. During winter, a few spruce fir branches may be stuck in amongst the pots, to shelter the plants during very severe frost.

With regard to propagation, by cuttings in autumn, at this season, if the kinds to be increased are tender, they should be put in pots and at once placed in a cold frame; or if a greenhouse is at hand, they may be placed on one of its shelves. In this case, the soil and mode of preparation recommended before must be adopted.

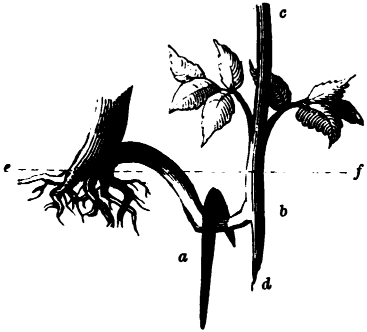
In striking more hardy kinds, however, neither frame nor greenhouse is required. The following plan, as our own experience has proved, will be successful.

In a corner of the garden place a barrowful of sand. This will be sufficient for two square yards of surface. Spread this and dig it in. The next step is to select your cuttings. In the case of Roses of medium vigour, shoots which have flowered may be chosen, and we generally pulled them off at their junction with the stem. In the case of very vigorous growers, as Ayrshire and Boursault Roses, &c., long shoots of the current year's growth were cut off, and divided into lengths of a foot or fifteen inches. After thus preparing, we proceeded to plant our cuttings. With the spade, trenches were made across the bed. These were deep in proportion to the length of the cuttings. They were placed in these trenches about two inches apart; the earth was filled in, and then slightly pressed down. In the case of these autumnal cuttings, two-thirds of the length should be imbedded in the soil.

PROPAGATION BY LAYERS (fig. 4).

A layer is simply a cutting, whose connexion with the parent plant remains unbroken till the process of rooting is completed, and the young shoot is able to support itself. June, July, and August are the months best adapted for the process, and the mode of conducting is as follows:—Having provided a trowel and some pegs, and having softened the soil around the plant on which we propose to operate, we select a shoot, firm, and not too old, and strip it of the lower leaves. Seizing it with the left hand, we bend it gently to the ground, and thus ascertain the most convenient place for the section. We then scoop out with the trowel a small hollow for its reception. With a sharp knife, an oblique cut must be made, beginning on the under surface of the branch, and extending obliquely upwards till it reaches the centre. This cut should always begin a little below a bud. With the left hand we must keep the part of the branch below the section close to the ground; and bending up the upper part, we must insert it perpendicularly in the soil. A peg must now be put in, so that the horizontal portion may be kept down, and the soil may then be pressed firmly around the section and under portion of the

Fig. 4.



LAYER.

a, *b*, Cut in Branch. *c*, *d*, Shoot in Position.
e, *f*, Surface of Soil.

upright shoot. This should be done at least to the depth of three inches. If the layers are made at midsummer, the young plants may be moved in the end of October, though it is safer to allow them to remain where they are, until spring has arrived.

In the case of Standard Roses, a variety in this mode of propagation is occasionally adopted. We can best illustrate the mode of operation, by an instance from personal experience. When the hybrid Chinese, "Chenedolé," made its first appearance, it was, as all amateurs are aware, deservedly hailed as an immense acquisition. Of this variety, we received a standard from England. During the first season it flowered most gorgeously; but in the following June, the Dog-Rose stock showed marked symptoms of rapidly increasing decay. After budding from it a goodly number of stocks, we resolved to secure some plants on their own roots. To effect this object, the stem was carefully bent down, and the head thus brought to a level with the ground. The soil where the head was, was then dug, and layers made of all the branches which were adapted for this purpose. The consequence was, that next season we had strong young plants in their own roots, of this magnificent, though sometimes uncertain variety.

GRAFTING.

Grafting is the insertion of a shoot of one plant in the stem of another, so closely, that the inner barks come into intimate contact. A union is thus effected so complete, that the two shoots become as one. The shoot inserted is called "the scion;" the stem on which we operate is called "the stock."

Various modes of conducting this operation are practised. We shall notice only three of these, viz.:—

Whip-grafting, *Cleft*-grafting, and *Root*-grafting.

1.—*Whip-Grafting* (see fig. 5).

In practising this mode, we must select scions and stocks of the same diameter. Taking a sharp knife in the right hand, we make an oblique cut in the stock, nearly an inch in length; beginning at the left and going smoothly up towards its right side. We then take the scion, and placing it on the knee, we make a smooth oblique cut on it, corresponding with that made on the stock. We then apply the one surface as exactly as possible to the other, bind them together, and cover the binding with grafting wax. The composition of this is as follows:—Take 1 lb. Burgundy pitch, ¼ lb. resin, 2 oz. bees' wax, ¼ lb.

Fig. 5.

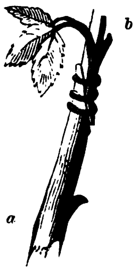


Fig. 6.

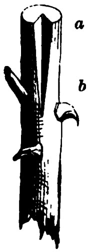


Fig. 7.

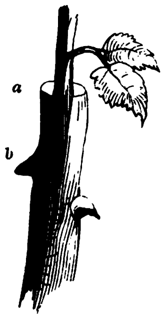
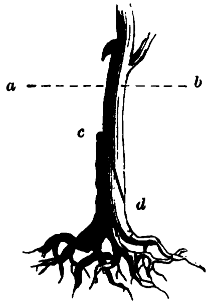


Fig. 8.



WHIP GRAFTING.

a, Stock. *b*, Scion.

CLEFT GRAFTING.

a, *b*, Cleft.

a, *b*, Scion inserted.

ROOT GRAFTING.

a, *b*, Level of Soil.
c, *d*, Junction of Scion and Stock.

lard, melt them together, and keep the mixture in a can. When required, soften well by heat, and apply with a brush. This, like all other modes of grafting, except root-grafting, must be performed during March.

2.—*Cleft-Grafting* (see figs. 6 and 7).

In this mode of grafting it is necessary to select a stock whose diameter is larger than that of the scion, which we propose to insert. The following is the mode of operation :—Cut the stock horizontally across with a sharp knife; a piece must then be removed, extending into the solid wood (fig. 6). The orifice thus left must be wedge-shaped, not only transversely, but perpendicularly, as in fig. 6, *a*, *b*. The scion must then be so cut and pointed, that its lower end will fit exactly into the cut thus made, and so introduced that the inner bark of stock and scion shall be in close contact (fig. 7). The whole must be bound up and waxed over, as directed in the case of whip-grafting.

3.—*Root-Grafting* (fig. 8).

This mode of grafting is most commonly adopted in the case of pot-Roses, and in cases where heat can be obtained. We have, however, often used it success-fully with Roses in the open ground. Its peculiar feature is, that here the root or portion of the stem immediately above the root, is selected for the insertion of the scion. We have heard it stated that this operation may be with safety performed in the house, even when no bottom heat can afterwards be applied; and that the roots may be raised, brought into the house, grafted, and then restored to the open border. This statement does not consist with our own experience. This mode of working may succeed, and we understand does so, when bottom heat can at once be employed; but in other cases, we have invariably found it to fail. To those, then, who have no such heat, we would say: Do not disturb the roots of those plants which you wish to use as stocks. Engraft them where they grow. In mild weather, in February or March, select your scions from shoots of the previous season's growth. It is advantageous to cut these, and bury them in damp ground a fortnight before the time, when you wish to insert them. This allows the stock to get a little in advance of the scion, which will render success more sure.

Begin the operation by removing the soil from the lower end of the stock. Cut the latter across, about an inch above the root, and then by whip, or cleft, or wedge grafting insert the scion. Tie it with bass, lay in the soil again, press it firmly down, and the operation is completed. The scion must be sufficiently long, to allow two or three buds to remain above the level of the ground.

In all cases of grafting, the stocks should be selected from free-growing, hardy varieties.

PROPAGATION BY BUDDING.

Budding and engrafting are distinguished, from propagation by cuttings and layers, by this important point of distinction, that while in the two last operations, we strive to induce the shoot which is in the one case entirely, and in the other partially severed from the parent plant, to form roots, and so draw nourishment from the soil; in budding and engrafting, our effort is to bring the inner bark, of the scion or the bud, so closely into contact with the ascending sap of the stock, that a communication of sap from the one to the other is established. Engrafting and budding, then, resemble each other in the fact, that in both, we induce the sap of the stock to nourish the bud of the strange shoot.

In selecting stocks in which to insert our buds, we must select them exclusively from free-growing varieties. In many cases these will be found in our own gardens. For budding on a wall or trellis, no varieties are more suitable as stocks, than the Boursault and Ayrshire Roses. Should we have strong, well-established plants of these families, we may soon succeed in covering the object, near which they grow, with a variety of choice kinds, which from habit of growth or constitution, are not adapted for the open border. In budding on such stocks, we must, as in all other cases of budding, insert the bud in wood of the same year's growth. It is a shoot which was itself a bud in winter, which must receive the inserted bud in July. True, we have known cases in which buds grew, even when they were introduced into old wood; but these cases are rare, and even when these buds lived, they produced only unhealthy and unseemly branches. In the case, however, of established plants belonging to the Ayrshire or Boursault families, there is no necessity for such a course. They invariably produce, from the lower part of their stems, an abundance of strong, young shoots, admirably adapted for the purpose in view. Should they not do so, with the prospect of July before us, we should cut all of the old branches closely to the root. This will compel the plant to send forth new shoots, ready for our summer operations.

In the case of those Roses, which without this cutting down produce abundance of young wood, we may allow the old branches to remain during the first season, after the others are budded. It is, however, injudicious to allow them to remain longer. They should be cut out at the following spring pruning. The reason is, that the kinds referred to are so vigorous in their habit, that they have a tendency to starve the less robust growers which are budded on them. It is almost unnecessary for us to add, that in selecting scions for a wall or trellis, the amateur should choose those chiefly which are of free-growing kinds; and if the trellis is in the open ground, the kinds selected must be not only robust in their growth, but hardy in their constitution.

These remarks apply, however, only to Roses intended for the wall or trellis; and the amateur, of course, desires to increase his plants for the bed or border. To effect this object, he must provide himself with transplanted stocks. The variety generally selected for this purpose, is the Rosa Canina, the "Dog-Rose" of our hedges, woods, and lanes. In Britain this family is widely distributed. Three varieties are common, viz., the White flowering, Blush, and Red flowering. It is the two first named varieties which are most eligible. Experience has shown that the variety with dark red blooms, produces stocks which are short-lived and unhealthy.

Even during winter, these varieties may be distinguished by the colour of the bark. The Red variety has a red bark. This, then, must be avoided.

November is a good month for transferring the stocks from the wood to the Rose-nursery. The ground intended for their reception must be well manured, and mild days must be selected for the work of transplantation. Leaving home with a strong spade, knife, and piece of rope, and, above all things, with a pair of the strongest gloves, we proceed to the spot where the Dog-Rose abounds; we may then select straight stems of one, two, or even three years' growth, and remove them with as little injury to the roots as circumstances admit of. If they have branches, these may be cut off, but the upright stems must be left as long as is possible. They must then be planted in the prepared ground, about three or four feet from each other, and staked. The last named operation is quite necessary. In March they must be shortened to the desired length. This of course will depend on our purpose regarding them. If we wish them for standards, they must be left three or four feet high; if for half-standards, two feet; and for dwarfs, about six inches.

After this spring shortening, the buds of the stocks will begin to swell, and we must carefully remove those which appear on the stem, with the exception of one, two, or three at the top,—the number of those spared depending on the strength and thickness of the stem itself.

The operation of budding may be performed with success during the months of July and August, and even during the first two weeks of September. A shady, damp day should be selected. We must, however, beware of conducting the operation during the actual fall of rain, as drops are apt, in such circumstances, to intrude themselves into the wounded parts, and so diminish the chance of success. If a day of this kind does not present itself, we must select the early morning, when the air is cool and moist. Budding should never be attempted when the air is dry and warm.

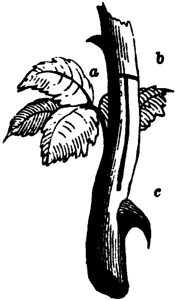
Another rule which we must observe is this:—We should select buds for insertion which are plump, and avoid those which are undeveloped, and those which have sprung. The wood of the branch which we intend to use as a stock should be firm; otherwise we will be unable to raise the bark with ease.

Providing ourselves with a budding-knife, and some soft, strong, and well-damped matting, we commence the work by examining the plants of our varieties which we wish to increase; and after selecting shoots, with the buds in a fit state, we proceed to the spot where the stocks are growing. Having fixed on the place in the scion, where the insertion should be made, we must remove the prickles growing there, as they would, if left, interrupt us.

Taking the branch containing the buds to be used in our left hand, we insert the knife about half an inch above a bud, and bring it down, so as to cut off the bud, and a portion about an inch in length of the bark to which it is attached (see fig. 10). In doing this, a small portion of the wood of the stock will generally be detached. This should be removed, which can easily be accomplished, by introducing the nail of the right thumb at the upper end of the detached portion of the scion, between the bark and this wood. We are aware that many do not object to this wood remaining, but our own experience has convinced us that its presence should be dispensed with.

The bud being thus prepared, we proceed to insert it. A horizontal cut is made in the stock (*a*, *b*, fig. 9), and a perpendicular cut from *c* to *d*. These incisions should not go deeper than the bark. Having made these, the amateur must insert the handle of his knife in the perpendicular incision, and gently raise the bark on its either side. He must then introduce the bud and its bark, and press it flat on

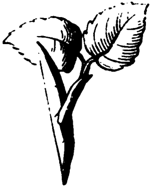
Fig. 9.



Budding.

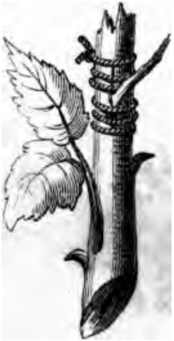
a, *b*, *c*, **T** cut in Stock.

Fig. 10.



Bud, with Shield of Bark Removed.

Fig. 11.



Budding completed.

the white wood of the stock, and the binding (fig. 11) will conclude the operation.

Should the inserted bud remain plump and fresh for a week, and the leaf-stalk belonging to it soon drop off, we may conclude that the work has succeeded. On the other hand, if the inserted bark becomes black, and this leaf-stalk adheres for sometime firmly, it is almost certain that the operation has failed.

In the course of six weeks, and more especially if the bark of the stock begins to swell above the ligature, the tying must be loosened, and in the course of a month after this loosening, it may be entirely removed.

If the buds inserted are those of very tender varieties, it is advisable to give them some protection during the winter months. We have found that a little fog tied over them in November is sufficient for this purpose. Collodion, spread over the bud and the whole of the wound with a brush, has also been tried with success.

In spring, the branches of the stock on which the buds are placed should be shortened. The half of their length only should at first be taken away; and when the buds are fairly started, these branches must be cut down to the point of insertion.

Immediately after a branch is budded, some means should be adopted to prevent it being broken by the wind. This often happens at the place where the cross cut is made, if no support is provided.

Means must also be taken, to preserve the young shoots in spring from suffering from the same cause. For this purpose, the stakes to which the stocks are fastened should be so high that the budded shoots may be tied to them. This may be done with ease if the operator places, as he ought invariably to do, the bud as close as he can to the main stem of the stock.

Before we conclude our remarks on budding, we may observe that Roses of different colours are often inserted on the same stock. As a general rule, the effect of this mode of treatment is bad. A few stocks may, however, be treated thus, for the sake of curiosity.

PROPAGATION BY SEED.

By the modes of propagation already described, we increase our plants; by that now to be considered, we increase our varieties.

We are quite aware that many will be of opinion, that it is needless to make allusion to the mode of propagation about to be described; founding that opinion on the idea, that the Rose never ripens its seed in the northern part of this country. This idea is opposed to fact. The author's own garden was in Scotland, in a locality of medium warmth only, and nearly 800 feet above the level of the sea. Notwithstanding this, in seasons of average temperature, from plants trained on the wall, he had ripened seed-pods from Chenedolé, and many other fine varieties.

To the amateur, therefore, whose locality is favoured with an average climate, we would give this counsel: —Plant against a wall with a southern or western aspect, a few fine varieties of the kinds, which the experience of others has proved to be not indisposed to seed-bearing; and the probability is, that in a fine season, these will produce many pods of ripened seeds. If a greenhouse is available, a few may be tried there also, with the view of having seed developed. Of those likely to afford gratification in this respect, among others we mention, Chenedolé, Charles Duval, Ayrshire, Ruga, Gloire de Rosamene, Du Luxembourg Moss, &c. &c.

To increase in this case the likelihood of success, artificial impregnation should be practised. It is an operation most interesting in itself; and by attending to it, we not only secure the development of the seed, but vary and improve the kinds.

With regard to this impregnation, some florists make a distinction between the terms "Hybridizing" and "Cross-breeding." They apply the former term to the mixing of species, the latter to the mixing of varieties. The distinction is grammatically incorrect, and practically unnecessary. Every hybrid is a cross, and every cross is a hybrid. They are two words employed to describe one thing, *this* being the result of the impregnation of the pistil of one plant with the pollen of another.

With the exception of the classes designated in the Linnæan system "Monœcious" and "Diœcious," plants are provided by nature with organs contained in the same flower, capable of continuing their species. These organs are their stamens and pistils. It is the function of the stamen to produce the pollen; it is the function of the pistil to receive it. The developed seed is the result which flows from the combined discharge of these functions. Accordingly, when the pistil of one variety is excluded from its own pollen, and impregnated only with pollen from another variety, the natural result will be, that plants resulting from this foreign impregnation, will combine in them the characteristics of both parents—this combination in the offspring being displayed, sometimes in the colour of the bloom, sometimes in the habit of the plant, or in the duration of its flowering season.

This combination of the characteristics of parents does not, however, in the case of seedlings, manifest itself in every individual offspring in the same proportions. Sometimes we find one bearing resemblance more especially to one parent, while its neighbour seedling will more closely resemble the other. This matter is beyond the florist's control. All that he can do is to bring into contact two kinds, the combination of whose characteristics would be desirable. How desirable, for instance, to conjoin the hardiness and vigour of the "Ruga Ayrshire," with the colour and size of bloom found in Noisette "Solfaterre:" or with the Tea "Gloire de Dijon," to join the unequalled shape and tints of "Coup d'Hebe," or the dazzling crimson of "Géant de Batailles" and "Lord Raglan;" or to take another illustration, how precious would be a perpetual "Coup d'Hebe." We have, indeed, "Louise Odier," and other hybrids approaching the perfection of this, the Queen of Roses; but there is still a gap between. This gap we have hope of seeing one day filled up, through the energy of our professional or amateur cultivators. How truly, then, so far as floriculture is concerned, does artificial impregnation impart to the florist a noble field for his exertions.

With the work of hybridizing in view, the amateur should place the plants on which he intends to operate, in the circumstances most favourable to the production of flowers which shall be perfect, with regard to their powers of reproduction. While he keeps them in a healthy and vigorous condition, he must guard them against grossness of growth. He must also thin the flower-buds, if they are too numerous. When the flowers are expanded, if he finds that petals are crowding around the organs of reproduction, some of these petals must be removed. On a sunny day he must carefully examine his flowers. If he finds the bloom which he intends to impregnate, approaching perfection, he should remove the stamens before they have shed their pollen, and apply to the pistil which remains, the pollen of the kind, which he has selected as the male parent. The work of impregnation is then completed.

The seed-pods will be ripe in November. They should then be gathered, and stored in boxes filled with dry sand. They must be carefully guarded against mice, which appear to regard Rose seeds as a morsel peculiarly dainty and attractive.

In the beginning of March, the pods may be broken and the seeds sown in seed-pans, about nine inches in depth; and having been covered with about half an inch of soil, they should then be gently watered. These boxes should be placed in a sunny border in the open air. The soil most suitable is sand and rich earth well mixed together. After the seed is sown, wire netting should be placed above each box, to protect it from the inroads of mice, which would otherwise destroy it.

About a month or six weeks, after the seed is sown, some of the young plants will make their appearance. Though they are few in number, the amateur must not be discouraged, as the seed of the Rose remains frequently dormant for a year. Great attention is needed in connexion with the shading and watering of the young plants; and they must be protected from the attacks of slugs.

When they are advanced a little in their growth, they must be kept free from weeds; and occasionally watered with care. They will be ready for transplantation in October, at which season they must be carefully raised, and placed a foot apart, in a rich, and well broken soil.

Some of the young plants will show a tendency to flower during the first season. This tendency must be checked. Flowering will weaken the plant, and afford no sure evidence of the character of future blossoms. It will require at least two seasons, to enable the amateur to come to any certain decision, as to the value of his seedlings.

During the second summer, he will however have many blooms, and it is a good plan, to take buds of the most promising, and insert them in vigorous stocks. This will tend materially to hasten the development of their character and value, as new varieties.

CHAPTER IX.

POT CULTURE OF ROSES.

THE amateur's object in cultivating Roses in pots, is to obtain blooms at seasons when he cannot have them, if his plants are exclusively grown in the open air. To effect this object, glass in one form or other is required; and the way in which he will employ it, will depend on the special purpose that he has in view.

If the object is merely to prolong the season of flowering, all that is required, is the adoption of some means by which the winter frost may be excluded. Those who are familiar with the habits of hybrid Perpetuals, and other autumnal Roses, must frequently have observed, that they generally abound in flower-buds, in different stages of development, at the time when the winter cold interposes to prevent these buds expanding. This, then, is the only reason why these varieties discontinue their blooms; they have not the heat which they require. That heat refused by nature, must be artificially supplied.

A cold frame will to a certain extent supply the desideratum. If the Roses in their pots are placed in it in September, and if the glass is covered, at night and during intense frost with matting, many of those buds which would never have opened, had the plant been left in the open air, will be encouraged to expand themselves in their beauty, during the earlier winter months. Should the amateur not be content with this, he must provide not only protection, but artificial heat. He must endeavour to bestow on his favourites a continuous August temperature, and this cannot in the middle of winter be effected merely through means of frames. A small house must be erected, which may be heated in a very simple way. Along this house there must be a passage, and the stages, or raised beds, on which the Rose-pots are placed, must be raised high enough to allow the plants to be near the glass. Air should be given freely; and the plants must be regularly watered, and at least twice a week, liquid manure applied.

When the amateur's object is to force Roses into an early bloom, his range is wider with regard to the kinds which he may employ. When he only strives to maintain the blooming of his favourites during the early winter months, as we have said before, he must select autumnal flowering varieties.

When his object is to force his plants into early spring flowering, he may include in his selection summer bloomers as well; one thing which he must guard carefully against in both cases, is that exhaustion of his plants, which arises from over-blooming during July and August. When Roses are forced into early blooming, we must, so far as we can, reverse the seasons with regard to them. February, March, and April, in the forcing-house, must be to them as June, July, and August are to their brethren in the open ground. In the case of summer Roses, this is easily done. After producing their blooms in the house, they naturally proceed to the formation of young wood for the next crop of blossoms; and all that is required, is to ripen this wood by removing the pots in May to the open ground, and plunging them in a sunny border during the summer and autumn months. In the case of Perpetual flowerers, more attention is needed to secure for them strength for spring; they must be checked in their flowering tendencies, during the summer and autumn months. When removed to the forcing-house, the heat applied must be gentle, and afterwards increased by not too rapid degrees.

If the amateur is skilful in his management, he may be able to secure Roses during almost every season. To effect this, he must introduce into the house simultaneously, Perpetuals and summer Roses; and he should have in the open air, or in a cold frame, a reserve stock of both of these kinds; and by retarding these, or exposing them to heat, as circumstances may advise, a constant succession may be secured.

The soil which has been found to suit Roses in pots, consists of a mixture of loam and decayed manure. If the loam is heavy, sand must be added, when Tea Roses are selected for this mode of culture.

The pots must be well drained. Broken crockery, small stones, or gravel, will effect this.

The plants may be potted in March, and kept during the summer and autumn months in a sunny border.

CHAPTER X.

THE ENEMIES OF THE ROSE.

The Rose, which has so many enthusiastic admirers, has its foes and dangers as well. These arise from two sources: the animal and the vegetable kingdoms. From the former, it is exposed to insects, and from the latter to disease.

Insects which Assail the Rose.

Of these, the one most commonly known is the Aphis. This little insect is sometimes of a green, and at other times of a brown or yellowish hue. Whether these different colours indicate a difference in species, or arise from the colour of the juices which, from the bark of different varieties, they imbibe, is a point which we need not discuss. One thing all Rose-growers must have observed, and it is this, that the colour of the Aphideæ, in general, corresponds with that of the bark or leaf which is selected for their home. These insects, generally designated by the title "green-fly," abound during some seasons in the greatest number; and like others of their genus, have a marvellous power of increase. This renders their total extermination necessary, as a few allowed to remain, in a short time would multiply into a most numerous progeny.

When allowed to live on unchecked, the Aphideæ not only mar the beauty of the plant; they also most seriously injure its health. By the mere bulk of their masses, they deprive the shoot of the beneficial influence of the sun. By the glutinous matter which they excrete, they impede the action of the glands and pores; while their nourishment is at the expense of the sap, which the plant requires for its life and development.

We must take means, therefore, to secure their speedy and total extirpation.

Some effect this, by means of a brush constructed for the purpose, and which may be obtained from the seedsman. This mode, unless followed by a good syringing, only partially fulfils our purpose. The brush may remove the fly, but it will not remove the glutinous excretion already deposited.

Tobacco juice is also often applied. It is certainly beneficial, but not in all cases effectual.

Powdered hellebore, which may be got at a low price from the druggist, when purchased for horticultural purposes, is also efficacious. Before it is applied, the plants must be well syringed; otherwise the powder will not adhere to the shoots.

A decoction of quassia chips we have found, to be more effectual than any of the prescriptions already mentioned.

The most efficacious of all remedies is, however, the "Gishurst Compound," sold in boxes at 1s., 3s., and 10s. 6d. each, with directions for use. By using this as directed, our little enemies will soon be driven from the field.

Another very troublesome visitor to the Rosarium, is the Green Caterpillar. This enemy generally shows itself in the month of May, and its presence is indicated at first, by the folding of those leaves which it selects for its abode. When these are opened by the hand, it is found coiled up. From this abode it issues to consume not only the foliage, but also the undeveloped buds. We have often seen the most promising buds thus destroyed; and as its devastations continue for a couple of months, unless its progress is checked, it may seriously mar our summer prospects. To check its advancement, the plants must be frequently examined; the insects either removed or crushed, and frequent washings applied, either of quassia decoction, or the compound already alluded to. In gardens where this enemy prevails, the decayed Rose leaves should be carefully removed in the end of autumn. They must not be dug into the soil of the beds. The reason is this: It is supposed that the eggs from which these caterpillars come, are deposited on the back of the leaf; by removing the latter when decayed, we diminish the likelihood of future annoyance.

The "Rose-Grub" is another source of pain and loss to the amateur. It is a brown ugly little thing, unpossessed of the colour of the caterpillar, but possessed of all its destructive propensities. It is discovered only by its doings, as it generally takes care to conceal itself in some very quiet place of seclusion. Its favourite food is not the leaf, but the sappy substance of the young and tender shoot. Entering there, it begins to eat away within the bark. It contemns the latter as too coarse for its taste; and we discover its presence only when the tender end of the shoot begins to wither away. On cutting off the decaying part, we find the hole along which it has made its way. We must cut along the shoot till the enemy is discovered, and then destroy it.

It is generally supposed that the eggs of this grub, are deposited by the parent moth in the hollows, which are caused at the end of shoots by previous pruning. It is therefore suggested, that these, in the beginning of winter, should be filled up, or covered over with the grafting wax, the composition of which we have already described.

The Rose, however, has to encounter difficulties arising from the vegetable, as well as the animal world.

Of these, one of the most perilous is the "Red Fungus," and one of the most common is the "Mildew." Both of these are caused by the attack of fungi—these fungi being different species of the genus "Uredo." The red fungus appears in the form of scarlet blotches on the bark. This it speedily destroys, unless means are adopted to remove it. The mildew has a whitish colour, and spreads over the shoots and leaves. The cure for both of these diseases, which experience has proved to be most effectual, is syringing freely with soapy water, with which a good proportion of sulphur has been mixed; or the plants may be well watered, and then powdered sulphur may be dusted over them carefully.

When the red fungus has seriously affected the bark of a Dog-Rose stock and engendered decay, the diseased bark should be cut off entirely, and the wound must be prolonged until bark of undoubted health is reached. This wound will in due time be covered with fresh bark, and thus a valuable specimen be preserved from destruction.

A very common cause of annoyance to the amateur, is what is known by the name of the "green centre." In general, this malformation assumes the form of three or four green projections, which occupy the place of the central petals of the flower. In some cases, however, we have seen these develop themselves into little shoots, springing from the centre of the bloom. This tendency is not confined to any particular class of Roses; though it is confined generally to particular varieties. It is found in the vigorous hybrid Bourbon, "Great Western," as well as in the dwarf Gallicas, "Ohl," or "Boule de Nautieul." In these, and others, it almost always exists; while in "Coup d'Hebe," and "Madame Zoutman," &c., the first vigorous, the other moderate in its habit, it is never seen. The class most subject to it, is certainly that of the Gallicas. We cannot remember at present one member of this class, totally and constantly exempt from this tendency. "Kean," "Ohl," "Boule de Nautieul," "Napoleon," "D'Aguisseau," "Latour d'Auvergne," and many others, which are the gems of this family, are all liable to this disease.

Floriculturists entertain different opinions as to the cause which produces, and the treatment which may cure this disease. So far as our own experience has gone, we agree with those who consider green centres as generally the result of excessive nutrition. We have already observed that the excessive pruning of a naturally vigorous variety of Rose, produces in the plant thus overpruned, a tendency to increase its individual size, and to diminish its tendency to increase its kind. The way in which this result is effected is this: Overpruning allows the parts which remain to be over-fed, and high-feeding in the vegetable, as it does in the animal world, induces sterility.

Now, the green centre in a Rose, just manifests an effort made by the plant to increase its size; and if we may be allowed the expression, an unwillingness on the part of that plant, to do anything towards increasing its kind, by the formation of a perfect flower. Such, then, being the apparent cause, let us now consider what may be the probable cure of this disease. This surely cannot be difficult to discover. If the cause is over-nutrition, the cure must be the diminishing of nourishment. We must lessen the quantity of manure, applying what we give in a ripe and well-decayed condition; we must prune the roots unmercifully, and by these means half starve our rebellious protegées. Hunger will influence an obstinate plant, as well as an obstinate person.

CHAPTER XI.

STAKING—PROTECTING—TALLYING.

EVERY plant in the Rosarium, with the exception of the most dwarf, must be staked. The necessity of this is self-evident in the case of standards, &c. But dwarfs and others of medium growth, must also be supported. This is necessary, not only for the grace, but also for the health of the plant. If it is not properly supported, not only does abrasion take place in the bark during windy weather, but the roots also become loosened, and are thus prevented from fulfilling their functions. We must stake, therefore, all our Roses whose height is from six inches upwards.

We have found that larch fir stakes, proportioned in height and strength to the plants needing support, are not only the neatest, but the most enduring. After they are pointed, that portion which will be sunk in the soil, should be charred or plunged in gas-tar. This will prevent decay. Rose-stakes should be carefully examined before the flowering season. They are very apt to decay near the surface of the soil, and at this point to yield to the wind, even though the other portions are quite fresh and vigorous.

PROTECTION OF ROSES.

The amateur will not, in every case, wish to confine his selection to those varieties, which are sufficiently hardy to enable them to resist the winter cold. By doing so, he would deprive himself of some of the most attractive members of the Rose family. With the exception of localities in proximity to the sea, there are few places to the north of the Tweed, where some of our finest Tea and Noisette Roses, may with safety be left in winter without some protection. Grown though these Roses are on the wall, as in the north they should always be, even there they are exposed to the greatest peril.

The most common, and perhaps the best mode of protection, is a thin covering of spruce fir; or, if this cannot be had, of other evergreen branches. These should, about the beginning of December, be tied to the main stems of the plant. Spruce branches are preferable to other kinds of protection, because, as spring advances, the foliage gradually falls off, thus by degrees affording to the plant increasing light and air. This covering may be removed in the end of March.

Should evergreen branches not be attainable, matting may be employed. This during the day in spring should be partially drawn aside, except when intense frost prevails.

Straw ropes afford a convenient mode of protection, which may be applied to tender varieties growing on the open border. In this case, three stakes must be placed around the plant. They should meet at the top, and be tied there, so as to form a kind of pyramid or cone; and the ropes may then be twined around them. In mild weather the ropes should be adjusted, so as to permit free entrance to the air.

During winter, all Roses should be protected at their roots by mulching. This should be applied in November, and removed in March.

TALLYING.

All Roses should be tallied. It adds to their interest, even in the eyes of an unscientific observer, when he knows the name of the kind which he admires. The tallies are very easily made. The amateur requires merely to order from a lathe-splitter, a bundle of lathes, of twice the thickness usually employed. These must be planed, cut into the lengths desired, and pointed. At the top, white lead paint must be put thinly on; and the name of the Rose written with a soft pencil while the paint is wet. If the lower part of the tally is charred, it will last for many years.

Zinc labels, with the name written with prepared ink, may be employed in the case of standard Roses. Every tally should bear not only the name of the variety, but the symbol of its class: thus, "Gal." for Gallica; "H. P." for Hybrid Perpetual; "H. B." for Hybrid Bourbon; "H. Pro." for Hybrid Provence, and so on.

CHAPTER XII.

ROSES WHICH REQUIRE PECULIAR MANAGEMENT.

Of the Roses which frequently disappoint, and always trouble the amateur, there is no one about which more has been written, and with which more experiments have been tried, than the old Double Yellow Rose (Rosa Sulphurea). The rarity with which perfect blossoms of this Rose are produced, is equalled only by their loveliness when they make their appearance. They do not equal those of the Persian Yellow in the intensity of their hue, but they excel them in their size and formation. It is, therefore, a cause of regret that this Rose, which is entitled to the name of a gem of the rosarium, should so rarely be found to develop itself in its beauty.

The cause of this uncertainty in flowering has never been satisfactorily ascertained. Some have alleged that it requires great age, to bring a plant of this variety into a flowering condition. Experience, however, has shown that age is not all that is required; otherwise every aged plant might be expected to flower. Besides, this peculiar fault of the plant is not that it does not produce, but that it does not open its buds;

and it is a well known fact in floriculture, that excessive vigour does not retard the opening of buds, so much as it diminishes the likelihood of their formation. Two remedies have been suggested in the case of the Rosa Sulphurea, and both, it is stated, have been attended with success. One is to afford to this Rose a temperature more congenial than that which even a southern wall can supply. It has been found to bloom satisfactorily in an orchard-house, where the only artificial heat bestowed was that afforded by the glass; and we doubt not that the application of glass to a plant, on the open wall during the summer months, would often effect the object desired. This variety is not delicate as a plant, as the Tea Rose is, but it seems to require a warmer atmosphere than that needed by Roses generally, at the time when its buds should expand. As a plant, it will defy a winter which would kill a Tea Rose; but, on the other hand, the latter will expand its blooms on the wall, where the Rosa Sulphurea presents only unopened buds.

The other remedy suggested in reference to this variety is to adopt the system of double-budding. Of the success of this mode of culture we have had no experience. The suggestion is, however, not unworthy of a trial, and the mode of proceeding is as follows :—On a Dog-Rose stem, insert a bud of the Boursault, or any other vigorous variety. In the shoot proceeding from this bud, let a bud of the Sulphurea be put.

The Banksian Rose is another favourite, which is very apt to disappoint its possessor. It may be grown for many years without its giving birth to a single bloom. Patience and frequent root-pruning are alike required. This Rose generally requires many years to develop its flowering tendencies; though these may be hastened by budding this Rose on shoots issuing from aged, and not vigorous stems of some other kind.

CHAPTER XIII.

NOTES AS TO THE ORIGIN OF SOME OF THE FAMILIES AND BEST VARIETIES OF THE ROSE.

As it may be interesting to the Rose amateur to know something of the history of his favourites, we here give a few notes on this subject. Many of our amateurs may be travellers, and it will not be uninteresting to them in the course of their journeys, to discover in distant lands, the parents of those varieties, whose beauty gives them so much gratification at home.

The " Provence Rose " is a native of Mount Caucasus, and the south of France. From a district in the latter country it derives its name. It is there, however, distinguished not by the name which it bears with us, but by its more strict botanical title of " Rose à cent Feuilles," or " Rosa centifolia " of botanists. It was introduced into Great Britain about the close of the sixteenth century.

The " Moss Rose " belongs to the Provence family, from which it is supposed to be a sport, and therefore not entitled to a separate botanical position.

This is proved by the fact, that seeds from this Rose do not always produce a mossy progeny, but frequently, varieties which have the characteristics of pure Provence Roses. The Old White, and the Bath White Moss Rose, have been obtained from the Old Blush Moss, but in a way differing from that in which varieties of the Rose are obtained generally. They are sports, and not seedlings from the common Moss. The former was discovered in a garden at Battersea about fifty years ago. The latter, a few years later, originated in a sport from the same variety in a garden in Clifton, near Bath—hence its name. Like all other sports, these varieties frequently manifest a tendency to return to the colour of the parent. Hence the blush stripes and shades which they so frequently exhibit.

Another variety of the Moss, which owes its origin to a sport of nature, is the "Mossy de Meaux." This is a most attractive little Rose, and when grown on its own roots, will live long and flower freely. It is supposed to be a sport from the common Pompone, or Rose de Meaux, and was discovered in a garden in Somersetshire in 1814.

The favourite semi-double Crimson Moss, "Du Luxemburg," was raised in the gardens of the Luxemburg Palace at Paris; while the finest Rose-coloured

Moss which we have, "Laneii," was originated in the seed beds of M. Luffay, and called after a distinguished British Rose-grower.

The "*Rosa Gallica.*"—The French Rose of English catalogues, and the "Rose de Provins" of French amateurs, is the oldest of the Roses imported into Britain from foreign lands. It is said that so long ago as the thirteenth century, this family was introduced into England, by an English prince; and, it is stated by some, that a crimson variety of this class was the Red Rose, assumed by the House of Lancaster; while, on the other hand, the "Rosa alba," was taken as the peculiar badge of the House of York. They now grow side by side, in the beds of the peaceful amateur; while in former ages, they were the means of exciting stormy passions, and often led to scenes of battle and of blood. The Rosa Gallica has, by the art of amateurs, been the parent of a numerous progeny. Not only has it given birth to other Gallicas, some of which are the gems of the Rosarium; but impregnated artificially, it has taken its part, in obtaining for us, some of our finest hybrids. The Gallica is supposed to be a native of the south of France. It is found abundantly in a wild state in Provence.

The Damask Rose (*R. Damascena*), comes from

Syria. It grows there in the greatest abundance. It has now been cultivated in this country for 300 years. For more than a century after its introduction, it remained unimproved, but by care, we have now "Madame Hardy," one of the finest of our Whites, and "Madame Zoutman," an exquisitely tinted White, which no cultivator should be without; and besides these, many crimson and other varieties.

The White Rose (*R. alba*), is found in a wild state, in many parts of central Europe. It was first cultivated in this country, about the end of the sixteenth century. In its natural state, as a single or semi-double White Rose, it has long been a favourite in the cottage garden. Now it is so much improved, that "Sophie de Marsilly," one of the finest Roses in existence, belongs to the number of its descendants.

The sweet variety, called the Scotch Rose (*R. spinossissima*), is a native of Great Britain. We advert to it only, that we may not pass by with disrespect, a native of our own country. By cultivation, some pretty Yellow Roses have been obtained from it; as "Josephus," "Lady Stuart," and also the "Yellow," which is generally believed to be a hybrid, first produced in France.

The Austrian Briar (*R. lutea*), is well known in its two single varieties: the Single Yellow, and the Copper-coloured. They are quite distinct with regard to family, from the "R. Sulphurea," to which we adverted in the preceding chapter. The Roses of this class are easily cultivated; but they cannot tolerate much pruning. This Rose is a native of the south and south-east of Europe. The members of the family are shy seed-bearers, and it therefore remains very limited in its varieties. "Harrisonii," and "William's Yellow," are two of the best which have been raised in this country; though we have an imported variety, which exceeds them much in its beauty. We allude to the "Persian Yellow," which was brought from Asia, by Sir H. Willock, in 1838.

The Boursault, or *R. alpina* of the botanist, is a native of the more southerly portion of the Alpine range. It derives its floricultural name from M. Boursault of Paris, with whom originated the first double variety, "the Old Double Red."

The Ayrshire Rose (*R. arvensis*), is generally supposed to be indigenous to Great Britain. It is found widely distributed in this country. During the last thirty years, it has been much improved by cultivation. "Rose Angle," raised near Dundee, has sometimes flowers of the most perfect form, closely resembling, at a little distance, a White Camillia. But the gems of this family are the "Thoresbyana," and the "Ruga." The residence of the author was covered with plants of the former, which in July produced myriads of snow-white blossoms; and these mingling with the dark green of the ivy, had a beautiful and attractive effect.

The "Ruga" is supposed to be a hybrid between the Ayrshire, and the Tea Rose. It has handsome bell-shaped blooms, of a blush hue, and is well worthy of cultivation.

The "*Rosa multiflora*," the type of a numerous class, was introduced from China or Japan, by Thunberg, about sixty years ago. It is much cultivated in Italy, and is there a favourite climbing Rose. Many of its varieties are delicate, and, therefore, require protection in this country during winter. "Laure Davoust" is a hybrid; it is a free-blooming and attractive variety.

The Evergreen Rose (*R. sempervirens*), is a native of the south of Europe. There it grows as commonly as the Ayrshire Rose with us. It is evergreen, not in reality, but by comparison. This Rose was specially cultivated by M. Jacques, gardener to Louis Philippe at Neuilly. He raised many fine varieties, some of which were named after the princesses of that royal house, as, for example, "Adelaide d'Orleans," "Princesse Louise," "Princesse Marie." "Princesse de Bolwyller," is a fine hybrid between this class and a Tea Rose. All the members of this family form graceful pillar or weeping plants; more especially "Adelaide d'Orleans," and "Myrianthus ranunculacea."

The "Banksian Rose" (*R. Banksiæ*), is supposed by botanists to have originated in the "*Rosa lævigata*," which is a native of Georgia and Tartary. It was introduced to us, however, from China, about the year 1807. It came to us at first in the form of the old Double White. The Double Yellow has since been imported, and successive explorers are occasionally adding others. No new varieties, however, have been raised in this country, as with us this Rose never matures its seed. The varieties already known are much admired, from their small, though graceful and abundant bloom, resembling in size and form "the Bachelor's Button." So freely do Roses of this family grow, that an instance is recorded by Deslongchamps in his work on the Rose, of a plant of the White Banksian at Toulon, which twenty years ago had the following dimensions:—Its stem at the base was 9 inches in diameter. Its branches covered a space containing nearly 140 square yards of surface;

and it was computed that at one time it bore about 50,000 blossoms, thus presenting a most gorgeous spectacle.

AUTUMNAL ROSES.

This class of Roses was not entirely unknown to the ancients. To a certain extent they were produced by forcing. Seneca, in one of his Epistles, rebukes the practice, and puts the question—"Do *they* not live contrary to nature, who desire the Rose in winter. By the application of hot water and of heat during frost, they force the bloom of the lily." In Egypt and Rome, autumn Roses were common during the decline of the Roman empire. And in Augustan days, we find allusion made to them by the poet Virgil, under the name of the "Rosa Bifera."

The "Macartney Rose" (*R. bracteata*) was introduced from China, by Lord Macartney, in 1795. It has a fine foliage, differing from that of other Roses, and is a *true* evergreen. From the parent variety, others have descended, as "Maria leonida," a pure white, and "Rosa Hardii," with a single yellow bloom, marked in the centre with a dark spot. The latter is supposed to be a hybrid, however; the Rosa berberifolia being supposed to be the other parent.

The "*Rosa microphylla*" is closely allied to the last mentioned family, and was introduced about thirty years ago from the Himalayas. This family has also evergreen foliage, and already consists of many varieties.

The China Rose (*R. indica*), was introduced into this country about 1718. Since then, it has been a universal favourite; this popularity arising not only from the perfume and beauty of its blooms, but from the duration of its flowering season. It has been the parent of many fine varieties, distinct in their habits and their hues. "Mrs Bosanquet" is one of its finest white descendants. From this we have a gradation of tints, till we have the deep crimson, displayed in "Joseph Deschiens."

The Crimson China (*R. semperflorens*) is considered as an allied, though still distinct division of the same group. It was brought to Britain, about sixty years after the introduction of the Common China. It, too, has proved the parent of many varieties; varied in their colours, but all deserving of regard. We have the Rose commonly known as the "White China," evidently a member of this family, with its snowy blooms; the vivid Rose hue of "Leonidas," and the unequalled crimson of "Cramoisie superieure."

The "Tea Rose" (*R. indica odorata*) is the name of a class, to which belong perhaps the most attractive of our varieties. It is, like the "R. semperflorens," closely allied to the Chinese Rose. It is, however, evidently a distinct species. It differs from the Chinese in its habit, its colour, and in the colours which its descendants assume. The blush variety, the original of the class, was brought from China in 1810. In 1824 the Yellow Tea Rose was discovered by Mr Parker; and these varieties, by crossing, have given birth to a progeny most distinguished for their beauty. It is within this family that our loveliest yellow, fawn, and cream-coloured favourites are to be found. We have the gorgeous "Devoniensis," the only fine Tea Rose raised in England, whose blooms, in the author's garden, he has seen nearly four inches in diameter; the fawn buds and blooms of "Safrano;" the fawn in "Moinet;" the golden yellow of "Vicomtesse de Cazes; and, lastly, we have one of the gems of the Rosarium, the magnificent "Gloire de Dijon."

This fine Rose, with its cream-coloured blooms, tinted with fawn and blush, is certainly the queen of the class to which it belongs, and is besides, one of the hardiest. It was raised at Dijon in 1853. No garden should be without it. When placed on a south or west wall, and slightly protected during winter, no difficulty is encountered in cultivating it. Its blooms have, besides, the valuable property of keeping long after they are cut.

HYBRID ROSES.

We have previously referred to the absurd distinction, which is drawn by cultivators of the Rose, between "hybrid" and "cross-bred" varieties. This accords with the desire manifested by so many, to multiply unnecessarily, our floricultural names and classes. Let the botanist be as minute as he wishes in his distinctions; the florist, on the other hand, whose object has a more practical character than that of his botanical neighbour, should strive not to involve, but to simplify, the subject with which he deals. But how often is this overlooked; many a tyro, beginning his culture of the Rose, has been frightened, and mystified, by the increasing divisions of the Rose catalogues. He finds new divisions starting up, involving distinctions where there is no difference,—his favourite "Géant de Batailles," called by one Rose nurseryman, simply a Hybrid Perpetual; by another, a "Rose de Rosamene;" and some other florist may soon appear, who will call it something else.

The same remark applies to terms "Hybrid" and "Cross," or "Cross-breed." When we use the former term, in its strictly scientific sense, we believe that there are no hybrids in the Rose world. To this, it may be replied, that the florist uses it not in a scientific, but a popular acceptation. Let him do so, if he pleases. Let him employ the learned term, instead of a simple English word; but when he attaches to that learned term, a meaning which the English word is entitled to claim, let him not confuse the tyro, by any distinction between the one and the other; let him say "Hybrid or Cross," and not "Hybrid and Cross."

We remark further in reference to this confusion of names, that a true "hybrid" in the world of natural history, is considered to be incapable of continuing itself by progeny. We behold here, a check put by the great Creator, on the possibility of adding to the number of species at first brought into existence. The horse and the ass may produce the mule; but the mule cannot increase its kind. But Roses called "hybrids," have no such incapacity. Amongst the most semeniferous of our varieties, are "Chenedolé," "Charles Duval," &c., all called by this name.

Employing, then, the term, not in its proper and scientific signification, but in a merely popular sense, we proceed to record a few facts, regarding those Roses which have received the appellation.

The Bourbon Rose is generally considered to be a hybrid variety. It was, in the first form which was obtained, the result, not of intentional, but of accidental impregnation. It was discovered in the Isle of Bourbon in 1817, and hence its appellation. The history of its origin is generally given as follows:—It is the custom of the inhabitants of this island, to form inclosures, by means of Roses, which grow there in great luxuriance. Two varieties are generally mingled,—the Chinese, and "Rose of four seasons." M. Perichon, a gentleman who resided at Benoist, in the island, when planting a hedge of Roses, discovered amongst his plants, one whose foliage and habit was distinct from the two species which we have named; and which were the only species cultivated at the time in the island. This in due season bloomed, and was the originator of the Bourbon family. Plants were sent in 1822 to M. Jacques at Neuilly; and to this cultivator, are we indebted for the first new varieties of this attractive group. Amongst its gems, are "the Queen of Bourbons," flesh coloured; the favourite white "Souvenir de Malmaison;" the rich crimson "Paul Joseph;" and the peculiarly tinted "Angelina."

THE "NOISETTE."

It is generally supposed that the original Noisette was a hybrid, whose parents were the Musk Rose, and some Tea Scented, or Chinese variety. It was obtained by a florist in North America, and sent by him to his brother M. Noisette, in Paris. At the time of its first appearance in 1817, it attracted much attention. It has since then, been much improved, but still the old blush Noisette remains a favourite. It may not possess in its blooms, the size and colours of some which are descended from it, but it excels all of them in its hardiness, and consequently in the ease with which it may be cultivated. It has, besides, more of the musk odour than they have. The reason of this is, that this family has been multiplied more by impregnation with Tea varieties, than with other kinds, which has resulted in the fact, that almost all of our newer Noisettes, have the peculiar odour of the Tea Rose.

The Noisettes having thus so much of the nature of the Tea Rose, are delicate in their constitution. Most of them require slight protection during winter. Their extreme beauty, however, amply repays this extra trouble. We can have no finer blooms in the gardens than those produced by varieties of this class. No amateur who has a wall with a good exposure, should be without some of the following:—"Lamarque" (white); "Solfaterre" (pale sulphur); "Cloth of Gold" (yellow); "Isabella Gray" (yellow)—raised a few years ago by Mr Gray, an American florist, from seeds of the Cloth of Gold; "Ophirie," distinct from every other Rose, in its coppery tints, &c.

In growing this class of Roses, the amateur must beware of pruning too much. The long shoots so often produced by them, must be nailed in at their full length as they grow. This will tend to the ripening of these shoots; and thus increase the likelihood of a full display of blooms, during the next season. Those branches which have become aged, may be thinned out at the time of winter pruning.

The "Cloth of Gold" and its progeny "Isabella Gray," are both of them very uncertain bloomers in Scotland.

The "Hybrid Provence" is a hybrid between the Provence, and the French or Gallica. This group contains many fine varieties. "Princess Clementine" is one of the most beautiful of our White Roses; and "Devigné," with its delicate blush flowers, forms a showy and graceful plant when trained as a pillar Rose.

The "Hybrid Chinese" family contains many of our loveliest varieties. The members of this family owe their origin to the Gallicas, Provence, and other hardy Roses, impregnated with the pollen of the Chinese. Most of them have the hardiness of the one parent, combined with the robust habits of the other; but all of them, in gaining strength of constitution, have lost the tendency to autumnal flowering. We consider "Chenedolé" to be the gem of this group. No object can be finer than a large plant of this variety, covered with its fiery scarlet blooms. So intense is the colour, that it strikes the eye even at a considerable distance, and produces the dazzling effect of flame. This variety was raised in France, and named in honour of the deputy of the province. "Brennus," "Blairii," and "General Jacquiminot," are also well-known and much admired varieties; while, lastly, to the same group, belongs "Madame Plantier," certainly the best white pillar Rose which we have.

The "Hybrid Bourbon" Roses result from the impregnation of some of those hardy kinds, to which we have already referred, with the Bourbon Rose. They closely resemble the Hybrid Chinese, and among them are to be found some of the most beautiful of our Roses. Were we asked to name the six finest Roses in cultivation, we would include in the number, one member of the class now under consideration. We allude to "Coup d'Hebe." Where can we find the Rose, which surpasses this lovely variety in shape or colour? It is of a beautiful shaded blush, and the form and arrangement of its petals are all that can be desired. It has, however, from the very delicacy of its shade, a great tendency to fade. It should therefore, be grown where the full power of a July sun will not be brought to bear upon it. Another superb member of this family is "Paul Ricaut." This, too, is magnificent in its form, size, and in the rich crimson of its hue. It is unlike "Coup d'Hebe," however, in being a Rose not of vigorous, but of moderate growth. "Charles Duval," also, is a fine variety. Its colour is Rose, and when planted on a good wall, will ripen its seed-pods freely.

The "Hybrid Perpetual" is the result of the crossing of many different varieties. Some of this class owe their descent to the Damask Perpetual, crossed with the China or Bourbon; others, to the latter Roses, crossed with the Hybrid China, and Hybrid Bourbon. In many cases it is difficult to trace the true genealogy. But whatever their descent may be, their value is undisputed;—and how beggarly would our Rose-beds be without them. It is difficult to individualize many of a class, all of whose members are so valuable and so attractive. Of Crimson Roses, we have the peerless "Géant de Batailles," and its descendants, "Lord Raglan," and "Cardinal Patrizzi;" the fiery "General Jacquiminot," so exquisite in its dazzling brightness, and "Gloire de Santenay," more novel, but worthy of one of the highest places in the list. Of others of more chastened hues, we must not overlook "Jules Margottin," "Louise Odier," "Reine de Fleurs," "Comtesse de Chabrillan," "Anna de Diesbach," and a host of gems.

CHAPTER XIV.

SELECT LISTS OF SOME OF THE FINEST ROSES OF PARTICULAR COLOURS, OR FOR SPECIAL OBJECTS.

THE tyro, as before said, in beginning his collection of Roses, is apt to get into confusion when he trusts entirely to the guidance of descriptive catalogues. He desires, it may be, to begin his collection with a limited number of the very best: some being intended for one purpose, and some for another.

It may, therefore, aid him in his selection if we supply him with a few groups: the classification being made to depend, not so much on *family*, as on *fitness for particular objects*.

1. Roses adapted for covering a *trellis, arch or wall,* where the exposure is not very favourable.—All of the *Boursault* and *Ayrshire* Roses. Of the former, more especially the Blush and Crimson; of the latter, Thoresbyana and Splendens. *Evergreen:* Adelaide d'Orleans, and Myrianthus Ranunculacea, Rampant, Rosea plena.

2. Roses for a *sunny wall.—Multiflora*: Grevillei.

Banksian: White. *M'Artney:* Maria Leonida. *Tea:* Gloire de Dijon, Devoniensis. *Noisettes:* Solfaterre, Ophirie, Lamarque, Cloth of Gold.

3. Roses for *pillars.*—*Ayrshire, Boursault,* and *Evergreen. Hybrid Chinese:* Chenedolé, Blairii, Brennus, Fulgens. *Hybrid Bourbon:* Coup d'Hebe, Paul Perras, Henri Barbet. *Hybrid Perpetual:* Louise Odier, Le Leon des Combats, Marquise Bocella, William Griffiths.

4. Roses for *Weeping* Plants.—*Ayrshire:* Ruga, Thoresbyana. *Evergreen:* all. *Multiflora:* Laura Davoust.

5. Roses for a bed of *well varied colour.*—*Alba:* Madame Legras, Sophie de Marsilly. *Damask:* Duke of Cambridge. *Gallica:* Kean. *Austrian:* Persian Yellow. *Moss:* Laneii. *Hybrid Perpetual:* Madame Laffay, Géant de Batailles, Dr Julliard, Reine des Flores, Lord Raglan. *Bourbon:* Souvenir de Malmaison, Queen of Bourbons. *Hybrid China:* Comtesse de Lacepede. *Hybrid Bourbon:* Paul Ricaut.

6. Best *Yellow* Roses.—*Austrian:* Persian Yellow. *Tea Scented:* Vicomtesse de Cazes, Eliza Sauvage, Boule d'Or. *Noisettes:* Solfaterre, Ophirie, Cloth of Gold.

7. *Fawn* and *Salmon-coloured* Roses.—*Tea:*

Safrano, Gloire de Dijon, Moinet, Auguste Vacher, Madame de St Joseph.

8. Finest *White* Roses.—*Hybrid Provence:* Princess Clementine. *Damask:* Madame Hardy, Madame Zoutman. *Hybrid China:* Madame Plantier. *Tea:* Devoniensis. *Noisette:* Lamarque. *Alba:* Madame Legras.

9. Finest *Crimson* Roses.—*Gallica:* Kean, Napoleon. *Hybrid China:* Fulgens, General Kleber, Chenedolé. *Hybrid Perpetual:* Géant de Batailles, Cardinal Patrizzi, Lord Raglan, General Jacquiminot, Senateur Vaise, Gloire de Santenay. *Bourbon:* Paul Joseph, Adelaide Bougere, La Quintinie. *China:* Cramoisie Superieure.

10. Finest *Blush* and *Rose coloured.*—*Hybrid Bourbon:* Coup d'Hebe. *Hybrid Perpetual:* Caroline de Sansal, Duchess of Sutherland, Madame Guinnoiseau, Madame Vigneron, Madame Vidot, Louise Odier, Jules Margottin. *Gallica:* Letitia.

CHAPTER XV.

SELECT LIST OF VARIETIES, ARRANGED ACCORDING TO THE FLORICULTURAL GROUPS.

In the following list, we have named 140 of the best varieties. Should the beginner in Rose culture wish at first to confine himself to 80, he may select all of those which have asterisks attached to the name. If he wishes to obtain at first, a still more limited number, he will find that those marked with a double asterisk, are the finest Roses in cultivation.

PROVENCE ROSES.	COLOUR.
*Fringed or Crested	Rose.
White or Unique	White.

MOSS ROSES.

Celina	Crimson.
Gloire de Mousseuses	Rose.
**Laneii	Rose.
*Reine Blanche	White.
*Luxemburg	Crimson.
White Bath	White.

Hybrid Provence Roses.	COLOUR.
Blanchefleur	Light Blush.
Comtesse de Segur	Cream.
*Devigné	Pink.
*Madame Andot	Blush.
*Princess Clementine	White.

Damask Roses.

*Madame Hardy	White.
Madame Stolz	Lemon.
**Madame Zoutman	Cream.

Rosa Alba.

La Seduisante	Rose.
*Madame Legras	White.

Gallicas.

*Boula de Nanteuil	Violet.
D'Aguisseau	Crimson.
*Gloire de Colmar	Crimson.
*Kean	Crimson.
Letitia	Rose.
Napoleon	Rose.
*Ohl	Crimson.
Pierre Janssens	Crimson.
*Transon Gombault	Rose.

HYBRID CHINESE.

	COLOUR.
*Beauty of Billiard	Crimson.
Blairii	Rose.
Brennus	Crimson.
**Chenedolé	Crimson.
*Fulgens	Crimson.
General Jacquiminot	Crimson.
**Madame Plantier	White.

HYBRID BOURBON.

*Charles Duval	Rose.
**Charles Lawson	Rose.
**Coup d'Hebe	Blush.
Paul Perras	Rose.
**Paul Ricaut	Crimson.

AUSTRIAN.

Copper.	
*Harrisonii	Yellow.
**Persian Yellow	Yellow.

BANKSIAN.

*Jaune Serin	Yellow.
White.	

AYRSHIRE.

*Fortune's Yellow	Copper.
*Splendens	Blush.

	COLOUR.
Ruga	Blush.
*Thoresbyana	White.

MULTIFLORA.

*Laure Davoust	Pink.

BOURSAULT.

Crimson.	
*Blush.	
*Gracilis	Pink.

HYBRID CLIMBING ROSES.

*The Garland	White.
Madame d'Arblay	White.

EVERGREEN ROSES.

*Adelaide d'Orleans	Rose.
Myrianthes	Rose.
Rampant	White.

HYBRID PERPETUALS.

**Adelaide Fontaine	Pink.
*Admiral Nelson	Carmine.
*Altesse Imperiale	Crimson.
**Anna de Diesbach	Rose.
Armide	Pink.
*Auguste Mie	Blush.

	COLOUR.
*Baronne Prevost	Rose.
**Cardinal Patrizzi	Crimson.
*Caroline de Sansales	Blush.
**Comte de Nanteuil	Rose.
*Comtesse de Chabrillan	Pink.
Docteur Juillard	Rose.
**Duc de Cazes	Scarlet.
*Duchess of Sutherland	Blush.
*Empereur de Maroc	Crimson.
*Eveque de Nismes	Crimson.
**Géant de Batailles	Scarlet.
**General Jacquiminot	Crimson.
General Simpson	Carmine.
Gloire de Lyons	Purple.
**Gloire de Santenay	Scarlet.
Jacques Lafitte	Rose.
*Joseph Vernet	Pink.
**Jules Margottin	Rose.
La Ville de St Denis	Rose.
*Le Leon des Combats	Crimson.
**Lord Raglan	Crimson.
*Louis Chaix	Rose.
*Louise Odier	Rose.
**Madame Boll	Rose.
Madame Domage	Pink.

	COLOUR.
Madame Heraud	Pink.
*Madame Laffay	Rose.
**Madame Louise Carique	Carmine.
**Mademoiselle Godard	Rose.
Mathurin Regnier	Lilac.
**Monsieur de Mortigny	Rose.
*Prince Leon	Crimson.
**Senateur Vaise	Scarlet.
**Souvenir de la Reine d'Angleterre	Rose.
*Souvenir de Leveson Gower	Rose.
*Triomphe de Lyons	Crimson.
Triomphe de Paris	Crimson.
*William Griffiths	Rose.
**William Jesse	Rose.
Salet (Perpetual Moss)	Pink.

BOURBON ROSES.

Acidalie	Blush.
Bouquet des Flores	Carmine.
*Docteur Berthet	Crimson.
Dupetit Thouars	Crimson.
**George Peabody	Purple.
**Mademoiselle Josephine Clermont	Flesh.
*Paul Joseph	Crimson.
*Queen of Bourbons	Salmon.

	COLOUR.
*Sir Joseph Paxton	Rose.
*Souchet	Crimson.
**Souvenir de Malmaison	Flesh.

China Roses.

*Cramoisie Superieure	Crimson.
*Eugene Beauharnais.	Amaranth.
Madame Breon	Rose.
**Mrs Bosanquet	Flesh.

Tea Roses.

Abricote	Fawn.
Adam	Rose.
*Auguste Vacher	Fawn & Yellow.
**Devoniensis	Creamy White.
*Elize Sauvage	Buff.
**Gloire de Dijon	Fawn & Salmon.
**La Boule d'or	Yellow.
*Moire	Fawn.
**Safrano	Fawn.
*Vicomtesse de Cazes	Yellow.
Yellow.	

Noisettes.

Aimée Vibert	White.
Claudia Augustin	Yellow.

	COLOUR.
**Cloth of Gold	Yellow.
Jaune Desprez	Copper.
**Lamarque	White.
Isabella Gray	Yellow.
*Ophirie	Copper.
**Solfaterre	Sulphur.
*Triomphe de Rennes	Yellow.

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